

Step-by-Step Guide to Open-E DSS V7 Active-Active iSCSI Failover

Software Version: DSS ver. 7.00 up01

Presentation updated: September 2012

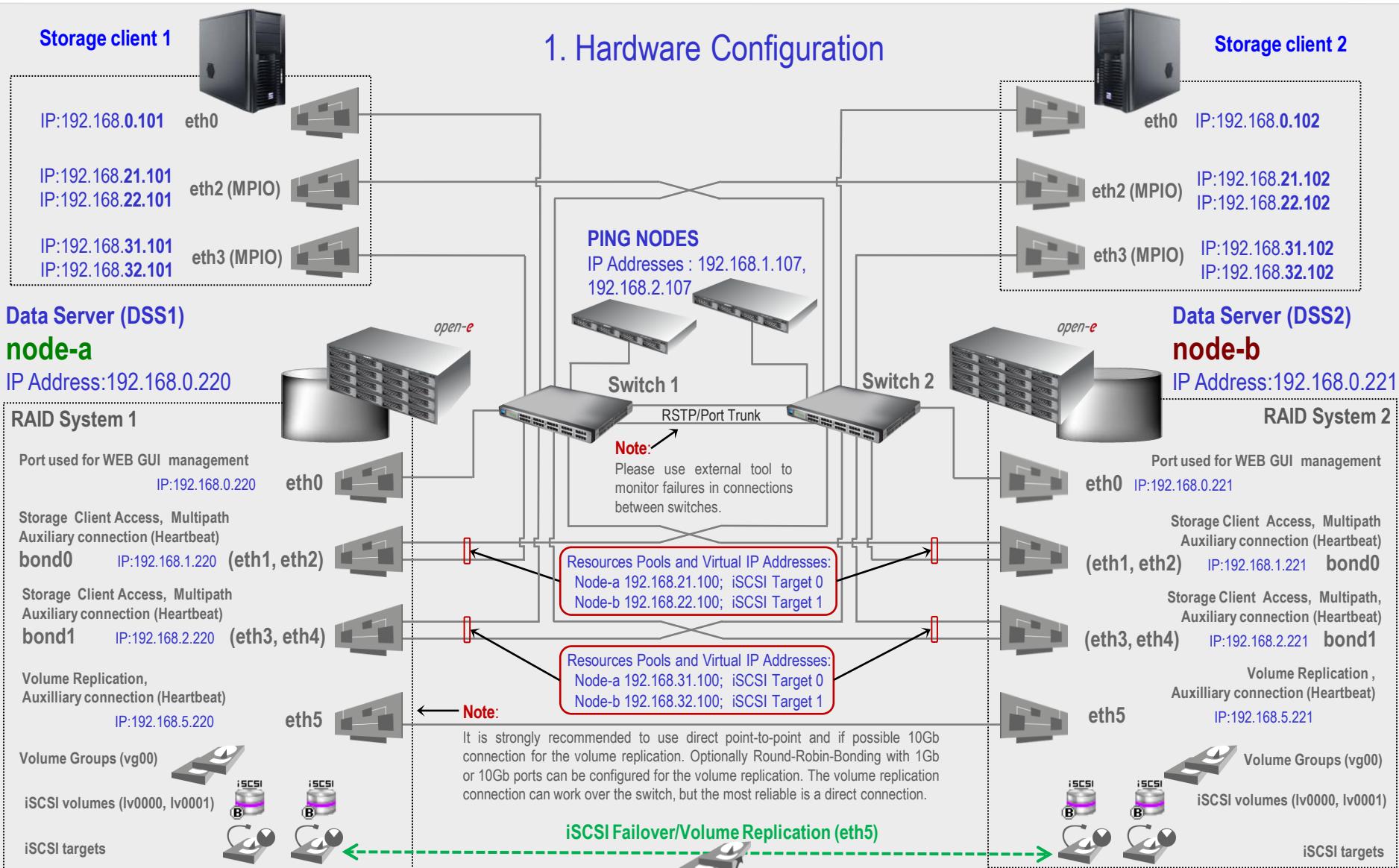
TO SET UP ACTIVE-ACTIVE iSCSI FAILOVER, PERFORM THE FOLLOWING STEPS:

1. Hardware configuration:
2. Network Configuration
 - Set server hostnames and ethernet ports on both nodes (node-a, node-b)
3. Configure the node-b:
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (destination and source mode) – define remote mode of binding , create Volume Replication task and start the replication task
4. Configure the node-a
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (source and destination mode), create Volume Replication task and start the replication task.
5. Create targets (node-a and node-b)
6. Configure Failover (node-a and node-b)
7. Start Failover Service
8. Test Failover Function
9. Run Fallback Function

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1. Hardware Configuration



NOTE:

To prevent switching loops, it's recommended to use RSTP (802.1w) or Port Trunking on network switches used to build A-A Failover network topology.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Network Configuration

After logging on to the Open-E DSS V7 (node-b), please go to **SETUP** and choose the „**Network interfaces**” option.

In the **Hostname** box, replace the "dss" letters in front of the numbers with „node-b” server, in this example „**node-b-59979144**” and click the **apply** button (this will require a reboot).

The screenshot shows the 'DATA STORAGE SOFTWARE V7' web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'You are here' breadcrumb trail indicates the current location is 'Setup > Network interfaces'. The main content area is divided into three sections:

- Interfaces:** A list of network interfaces: eth0, eth1, eth2, eth3, eth4, eth5. An arrow points from the text in the blue box to this section.
- Server name:** Fields for 'Server name' (dss) and 'Comment' (Data Storage Software). A red 'apply' button is present.
- Hostname:** A field for 'Hostname' containing 'node-b-59979144'. A blue arrow points from the 'Hostname' text in the blue box to this field. Below it is a message: 'Please apply changes or press "reload" button to discard'.
- DNS settings:** A field for 'DNS' containing '194.204.152.34;194.204.159.1'. A red 'apply' button is present.

At the bottom left is an 'Event Viewer' icon. The footer states 'Data Storage Software V7 - All rights reserved'.



Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Network Configuration

Next, select **eth0** interface and in the **IP address field**, change the IP address from 192.168.0.220 to 192.168.0.221

Then click **apply** (this will restart network configuration).

The screenshot shows the 'Network interfaces' configuration screen. On the left, a list of interfaces (eth0, eth1, eth2, eth3, eth4, eth5) is displayed, with eth0 being the selected interface (indicated by a red dot). On the right, the 'Interface info' pane shows the hardware as an Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06). The 'IP address' configuration pane contains the following fields:

IP address	
Warning Warning! You are currently connected through this interface.	
<input checked="" type="checkbox"/> Active	00:15:17:95:75:04
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IP address:	192.168.0.221
Netmask:	255.255.255.0
Broadcast:	auto
Gateway:	192.168.0.1

A red 'apply' button is located at the bottom right of the configuration pane.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Network Configuration

Once again, select **Interfaces** and in the „**Create new bond interface**” function check two boxes with **eth1** and **eth2**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input checked="" type="checkbox"/>	eth0	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes

Create:
New balance-alb

MAC:
02:38:22:48:C2:69

DHCP
Static

Address IP:
192.168.1.221

Netmask:
255.255.255.0

Broadcast:
[empty]

Gateway:
[empty]

Event Viewer

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Next, in the field **Adress IP** enter 192.168.1.221 and in the **Netmask** field enter 255.255.255.0
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Network Configuration

Again, in the „Create new bond interface” function check two boxes with **eth3** and **eth4**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input checked="" type="checkbox"/>	eth0	yes	cable	yes
<input type="checkbox"/>	<input checked="" type="checkbox"/>	eth1	yes	cable	no (bond0)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	eth2	yes	cable	no (bond0)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	eth3	yes	cable	yes
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input checked="" type="checkbox"/>	eth5	yes	cable	yes
Create: <input type="text" value="New balance-alb"/>					
MAC: <input type="text" value="02:2C:27:3B:54:97"/>					
<input type="radio"/> DHCP					
<input checked="" type="radio"/> Static					
Address IP: <input type="text" value="192.168.2.221"/>					
Netmask: <input type="text" value="255.255.255.0"/>					
Broadcast: <input type="text"/>					
Gateway: <input type="text"/>					

Next, in the field **Adress IP** enter 192.168.2.221 and in the **Netmask** field enter 255.255.255.0
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Network Configuration

The screenshot shows the 'CONFIGURATION' tab selected in the top navigation bar. The left pane displays a list of network interfaces: eth0, eth1 (bond0), eth2 (bond0), eth3 (bond1), eth4 (bond1), eth5, bond0, and bond1. The 'eth5' interface is highlighted with a red arrow pointing from the text box below. The right pane shows detailed information for the 'eth5' interface, which is an Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03). The 'IP address' section is expanded, showing the following settings:

Active	<input checked="" type="checkbox"/>
MAC:	00:04:23:B6:EC:83
DHCP	<input type="radio"/>
Static	<input checked="" type="radio"/>
IP address:	192.168.5.221
Netmask:	255.255.255.0
Broadcast:	auto
Gateway:	[empty]

A blue arrow points from the text box below to the 'IP address' field. A red 'apply' button is located at the bottom right of the configuration pane.

Event Viewer

Activation required. Without activation system services will continue running for 30 days after volume group creation.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

2. Network Configuration

After logging in to node-a, please go to **SETUP** and choose the „**Network interfaces**” option. In the **Hostname** box, replace the “dss” letters in front of the numbers with „node-a” server, in this example „**node-a-39166501**”and click **apply** (this will require a reboot).

The screenshot shows the "Setup" section of the software with the "Network interfaces" option selected. It includes three main configuration panels:

- Server name:** Shows "Server name: dss1" and "Comment: Data Storage Software". An "apply" button is present.
- Hostname:** Shows "Hostname: node-a-39166501". A blue arrow points from the text in the blue box on the left to this field. An "apply" button is present. A message at the bottom says "Please apply changes or press "reload" button to discard".
- DNS settings:** Shows "DNS: 194.204.152.34;194.204.159.1". An "apply" button is present.

At the bottom, there is an "Event Viewer" link and a footer note: "Data Storage Software V7 - All rights reserved".

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

2. Network Configuration

Next, select **Interfaces** and in the „**Create new bond interface**” function check two boxes with **eth1** and **eth2**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

The screenshot shows the 'DATA STORAGE SOFTWARE V7' interface. On the left, there's a sidebar with a list of interfaces: eth0, eth1, eth2, eth3, eth4, eth5. On the right, a 'Create new bond interface' dialog is open. It has a table with columns: Select, Primary, Interface, Active, Cable, Available. Under 'Interface', checkboxes are checked for eth1 and eth2. In the 'Create:' dropdown, 'New balance-alb' is selected. Below the table, there are fields for MAC (02:1C:75:D6:55:FB), bonding mode (Static selected), and network parameters (Address IP: 192.168.1.220, Netmask: 255.255.255.0, Broadcast: [empty], Gateway: [empty]).

In the field **Adress IP** enter 192.168.1.220 and in the **Netmask** field enter 255.255.255.0
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

2. Network Configuration

Again in the „Create new bond interface” function check two boxes with **eth3** and **eth4**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

The screenshot shows the 'Create new bond interface' configuration screen. On the left, a list of interfaces includes eth0, eth1 (bond0), eth2 (bond0), eth3, eth4, eth5, and bond0. Two checkboxes are checked for eth3 and eth4 under the 'Primary' column. The 'Create:' dropdown is set to 'New balance-alb'. The 'Static' radio button is selected, and the 'Address IP:' field contains '192.168.2.220', the 'Netmask:' field contains '255.255.255.0', and the 'Broadcast:' and 'Gateway:' fields are empty.

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	no (bond0)
<input type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	no (bond0)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes
bond0					

Event Viewer

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Next, in the field **Adress IP** enter 192.168.2.220 and in the **Netmask** field enter 255.255.255.0
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Under **CONFIGURATION**, select „Volume manager”, then click on „Volume groups”.

In the **Unit manager** function menu, add the selected physical units (**Unit MD0** or other) to create a new volume group (in this case, **vg00**) and click the **apply** button.

The screenshot shows the software interface with several windows:

- Top Bar:** open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS | DATA STORAGE SOFTWARE V7
- Navigation Bar:** SETUP, CONFIGURATION, MAINTENANCE, STATUS, HELP
- You are here:** Configuration > Volume manager > Volume groups
- Vol. groups:** A list view for volume groups.
- Unit rescans:** A window showing a rescan button.
- Unit manager:** A detailed configuration window:
 - Table:** Unit manager
 - Row:** Unit MD0, Size (GB): 298.10, Serial number: N/A, Status: available
 - Form:** Action: new volume group, Name: vg00
 - Buttons:** apply, Please apply changes or press "reload" button to discard
- Drive identifier:** A table showing two units: Unit S000 and Unit S001.
- Event Viewer:** A small window at the bottom left.
- Bottom Bar:** Data Storage Software V7 - All rights reserved

Blue arrows point from the text boxes to the corresponding sections in the interface: one arrow points from the first text box to the "Vol. groups" section, and two arrows point from the second text box to the "Unit manager" section.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. Please set 2 logical volumes in the Active-Active option. The 1st logical volume (**lv0000**) will be a destination of the replication process on node-b.

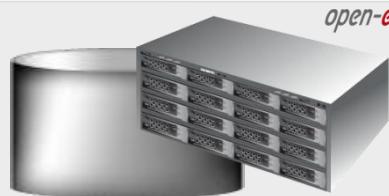
Next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button

The screenshot shows the 'Volume manager' configuration screen. On the left, there's a 'Vol. groups' list containing 'vg00'. Below it is a 'Vol. replication' section. The main area displays system volumes: SWAP (4.00 GB), Reserved for snapshots (0.00), Reserved for system (4.00), Reserved for replication (0.00), and Free (290.06). A blue arrow points from the 'vg00' entry in the 'Vol. groups' list to the 'Action' dropdown menu, which is set to 'new iSCSI volume'. Another blue arrow points from the 'Use volume replication' checkbox in the 'Vol. replication' section to the 'apply' button at the bottom right. The 'apply' button has a tooltip: 'Please apply changes or press "reload" button to discard'. At the bottom left is an 'Event Viewer' icon.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Next, create the 2nd logical volume on the node-b. Logical volume (**lv0001**) will be the source of the replication process on this node.

Next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button.

The screenshot shows the software interface with two main windows:

- Vol. groups** window: Shows a list of logical volumes. One entry, "lv0000", is highlighted with a green checkmark in the "Rep." column, indicating it is the source for replication. Other entries include "System volumes", "SWAP", "Reserved for snapshots", "Reserved for system", and "Free".
- Vol. replication** window: This is the active configuration screen. It has a table for creating a new iSCSI volume:

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0001	iSCSI				N/A	50.00

Below the table are configuration options:
 - Action: new iSCSI volume
 - Options: Just create volume
 - Checkboxes: Use volume replication (checked), Initialize (checked), Block I/O (radio button selected).
 - Slider: Set to medium.
 - Buttons: < > (for size), add: 50 GB (+0.12 GB for replication), apply (highlighted in red).

At the bottom of the interface, there is an **Event Viewer** section and a footer note: "Data Storage Software V7 - All rights reserved".

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

2 logical iSCSI Volume Block I/O are now configured.

iSCSI volume (lv0000) is set to destination

iSCSI volume (lv0001) is set to source

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓	N/A	50.00	
lv0001	iSCSI		✓	N/A	50.00	
System volumes						
SWAP 4.00						
Reserved for snapshots 0.00						
Reserved for system 4.00						
Reserved for replication 0.25						
Free 189.81						
Action: new NAS volume						
<input type="checkbox"/> Use volume replication						
<input type="checkbox"/> WORM						
<input type="button"/> 0 < > add: 0.00 GB						
<input type="button" value="apply"/>						

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Under **CONFIGURATION**, select „Volume manager” and then click on „Volume groups”.

Add the selected physical units (**Unit S001** or other) to create a new volume group (in this case, **vg00**) and click **apply** button.



Volume Groups (vg00)

The screenshot shows the software interface with several windows open:

- Vol. groups**: A window showing a list of volume groups. It has a blue arrow pointing to it from the first text box.
- Unit rescans**: A window showing a list of units with a "rescan" button.
- Unit manager**: A window where a unit is selected (Unit S001). The "Action" dropdown is set to "new volume group" and the "Name" field is set to "vg00". A blue arrow points to the "Name" field from the second text box.
- Drive identifier**: A window showing a list of drives. Unit S001 is listed with a status of "N/A".
- Event Viewer**: A small window at the bottom left.

The top navigation bar includes **SETUP**, **CONFIGURATION**, **MAINTENANCE**, **STATUS**, and **HELP**. The title bar says "DATA STORAGE SOFTWARE V7".

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size.

Please set 2 logical volumes in the Active-Active option.

The 1st logical volume (**lv0000**) will be a source of the replication process on the node-a.

Next, check the box for „**Use volume replication**”

After assigning an appropriate amount of space to the iSCSI volume, click the **apply** button.

NOTE:

The source and destination volumes must be of identical size.

The screenshot shows the 'Volume manager' configuration screen. On the left, there's a 'Vol. groups' list containing 'vg00'. Below it is a 'Vol. replication' section. The main right pane displays system volumes and their sizes. A blue arrow points from the 'Vol. groups' list to the 'Action' dropdown menu, which is set to 'new iSCSI volume'. Another blue arrow points from the 'Vol. replication' section to the 'Use volume replication' checkbox, which is checked. A third blue arrow points from the 'Vol. replication' section to the 'apply' button at the bottom right. The 'apply' button has a tooltip: 'Please apply changes or press "reload" button to discard'. The bottom of the screen shows an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved'.

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	457.66

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Next, create the 2nd logical volume on the node-a. Logical volume (**lv0001**) will be a destination of the replication process on this node.

Next, check the box for „**Use volume replication**”.

After assigning an appropriate amount of space to the iSCSI volume, click the **apply** button.

NOTE:

The source and destination volumes must be of identical size.

The screenshot shows the software's main window with several tabs at the top: SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The CONFIGURATION tab is selected, and the sub-menu "Volume manager > Volume groups > vg00" is active. On the left, there are two panels: "Vol. groups" and "Vol. replication". The "Vol. groups" panel shows a single entry "vg00". The "Vol. replication" panel is currently inactive. The main right-hand area displays a table of logical volumes:

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓	N/A	50.00	
System volumes						
SWAP						
Reserved for snapshots						
Reserved for system						
Reserved for replication						
Free						
Action: new iSCSI volume						
Options: Just create volume						
<input checked="" type="checkbox"/> Use volume replication						
<input type="radio"/> File I/O						
<input checked="" type="checkbox"/> Initialize						
Rate: medium						
<input type="radio"/> Block I/O						
0 <input type="button" value="<"/> <input type="button" value=">"/> add: 50 GB (+0.12 GB for replication)						
<input type="button" value="apply"/>						

At the bottom left is an "Event Viewer" icon, and at the bottom center is the text "Data Storage Software V7 - All rights reserved". A large blue arrow points from the text "After assigning an appropriate amount of space to the iSCSI volume, click the apply button." to the "apply" button. Another blue arrow points from the text "Next, check the box for „Use volume replication”." to the "Use volume replication" checkbox. A third blue arrow points from the text "Next, create the 2nd logical volume on the node-a. Logical volume (lv0001) will be a destination of the replication process on this node." to the "new iSCSI volume" dropdown menu.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

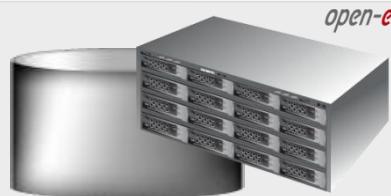
2 logical iSCSI Volume Block I/O are now configured.

iSCSI volume (lv0000) is set to source

iSCSI volume (lv0001) is set to destination

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓		N/A	50.00
lv0001	iSCSI		✓		N/A	50.00
System volumes						
SWAP 4.00						
Reserved for snapshots 0.00						
Reserved for system 4.00						
Reserved for replication 0.25						
Free 357.41						
Action: new NAS volume						
<input type="checkbox"/> Use volume replication						
<input type="checkbox"/> WORM						
0						
< > add: 0.00 GB						
apply						

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Now, on the node-b, go to „Volume replication”.

Within **Volume replication mode** function, check the **Destination** box for **lv0000** and check the **Source** box for **lv0001**.

Then, click the **apply** button.

In the **Hosts binding** function, enter the IP address of node-a (in our example, this would be 192.168.5.220), enter node-a administrator password and click the **apply** button.

The screenshot shows three panels of the Open-E DSS V7 web interface:

- Volume replication mode:** Shows two logical volumes: lv0000 (Destination, checked) and lv0001 (Source, checked). Both are marked as "done".

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
lv0001	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

apply

Please apply changes or press "reload" button to discard
- Hosts binding:** Shows fields for "Remote node IP address" (192.168.5.220) and "Remote node GUI (administrator) password" (*****).

Define remote node
Remote node IP address: 192.168.5.220
Remote node GUI (administrator) password: *****

connect
- Create new volume replication task:** Displays an info message: "Volume replication tasks can not be created because there is no remote node connected."

Info
Volume replication tasks can not be created because there is no remote node connected.

Event Viewer

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NOTE:

The remote node IP Address must be on the same subnet in order for the replication to communicate. VPN connections can work providing you are not using a NAT. Please follow example:

- node-a: 192.168.5.220
- node-b: 192.168.5.221

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Next, on the node-a, go to „Volume replication”. Within **Volume replication mode** function, check the **Source** box for **lv0000** and check the **Destination** box for **lv0001**. Next, click the **apply** button.

The screenshot shows the 'Volume replication mode' configuration screen. It lists two logical volumes: lv0000 and lv0001. For lv0000, the 'Source' checkbox is checked and the 'Destination' checkbox is unchecked. For lv0001, the 'Source' checkbox is unchecked and the 'Destination' checkbox is checked. There is a red 'apply' button at the bottom right of the table. Below this table, there is a 'Hosts binding' section showing a remote node with host name 'node-b-5...' and IP address '192.168.5.221'. The status is 'Reachable'. At the bottom, there is a 'Create new volume replication task' section with fields for 'Task name:' and 'Source volume:' set to 'lv0000'. The footer includes an 'Event Viewer' link and a copyright notice: 'Data Storage Software V7 - All rights reserved'.

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lv0001	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please apply changes or press "reload" button to discard

apply

Hosts binding

Remote node

Host name: node-b-5... IP address: 192.168.5.221 Status: Reachable

disconnect

Create new volume replication task

Task name:

Source volume: lv0000

Event Viewer

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

In the **Create new volume replication task**, enter the task name in the **Task name** field, then click on the button.

In the **Destination volume** field, select the appropriate volume (in this example, **lv0000**).

In case of a 10GbE connection it is recommended to set for the replication a higher **Bandwidth for SyncSource (MB)**. To achieve better performance you can set 500MB. In the example, maximum 600MB is used. Next, click the **create** button.

The screenshot shows the software interface with several windows open:

- Top Bar:** open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS | DATA STORAGE SOFTWARE V7
- Left Sidebar:** You are here: Configuration > Volum manager > Volume replication
- Vol. groups:** Shows a single volume group named vg00.
- Vol. replication:** A sub-menu or another window showing a list of replication tasks.
- Create new volume replication task:** This is the active window:
 - Task name:** MirrorTask-a
 - Source volume:** lv0000
 - Destination volume:** lv0000 (selected via a dropdown menu with a right-pointing arrow icon).
 - Bandwidth for SyncSource (MB):** 600
 - Buttons:** create (highlighted in red), and a note below saying "Please apply changes or press "reload" button to discard".
- Replication tasks manager:** Shows an info message: "Info No tasks have been found."
- Event Viewer:** Shows a star icon and the text "Event Viewer".

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

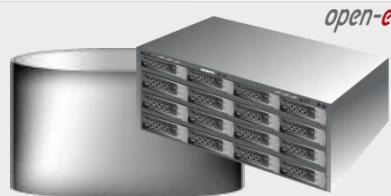
The screenshot shows the 'DATA STORAGE SOFTWARE V7' interface with several windows open:

- Vol. groups**: Shows a single volume group named 'vg00'.
- Hosts binding**: Displays a remote node named 'node-b-5...' with IP address 192.168.5.221, marked as 'Status: Reachable'. A red 'disconnect' button is visible.
- Vol. replication**: Shows a replication task named 'MirrorTask-a'.
- Create new volume replication task**: An info message states: "No volumes with replication functionality found or all volumes have a task assigned already."
- Replication tasks manager**: Lists the 'MirrorTask-a' task with 'Start time: n/a'. To the right, a blue arrow points to the play button in the toolbar.
- Event Viewer**: A small window at the bottom left.

Now, in the **Replication task manager** function, click the corresponding „play” button to start the Replication task on the node-a.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

The screenshot shows the software's main window with several tabs at the top: SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The CONFIGURATION tab is selected. Below it, a breadcrumb navigation path reads: You are here: Configuration > Volume manager > Volume replication.

The main area displays two panels:

- Vol. groups**: Shows a single volume group named "vg00".
- Create new volume replication task**: A message states: "No volumes with replication functionality found or all volumes have a task assigned already."

A blue callout box on the left contains the following text:

In the **Replication tasks manager** function, information is available on currently running replication tasks. When a task is started, a date and time will appear.

An arrow points from the text in the callout box to the "Replication tasks manager" panel on the right.

Replication tasks manager panel details:

Name	Start time	Action
MirrorTask-a	2012-09-05 20:20:31	[Edit] [Delete]

Task details:

- Source volume: lv0000
- Destination volume: lv0000
- Destination IP: 192.168.5.221
- Protocol type: Synchronous

At the bottom of the interface, there is an "Event Viewer" link and a footer note: "Data Storage Software V7 - All rights reserved".

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

You can check the status of Volume Replication anytime in **STATUS** -> „Tasks” -> „Volume Replication” menu.

Click on the button, located next to a task name (in this case **MirrorTask-a**) to display detailed information on the current replication task.

The screenshot shows the software's main window with the following sections:

- Top Bar:** open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS | DATA STORAGE SOFTWARE V7
- Navigation Bar:** SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP
- You are here:** Status > Tasks > Volume Replication
- Tasks pane:** A list of tasks including Data (File) Replication, Antivirus, Volume Replication (selected), and Snapshots.
- Running tasks pane:** Details for the selected task:
 - Name:** MirrorTask-a
 - Type:** Volume replication
 - Start time:** 2012-09-05 20:20:31
 - Protocol type:** Synchronous
 - Connection:** Connected
 - Source info:** Logical volume: L0000, Consistency: Consistent
 - Destination info:** Logical volume: L0000, Consistency: Consistent, IP address: 192.168.5.221
- Tasks log pane:** A table showing the task history:

Time	Name	Type	Status	Action
2012-09-05 20:20:38	MirrorTask-a	Volume replication	OK	Started
- Event Viewer:** A small icon at the bottom left.
- Bottom Bar:** Data Storage Software V7 - All rights reserved

NOTE:

Please allow the replication task to complete (similar to above with status being „Consistent”) before writing to the iSCSI Logical Volume.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Next, go to the node-b.
Within **Create new volume replication task**, enter the task name in the **Task name** field, then click on the button.
In the **Destination volume** field, select the appropriate volume (in this example, **lv0001**).

The screenshot shows the 'Vol. groups' and 'Vol. replication' sections of the interface. A 'Create new volume replication task' dialog box is open, overlaid on the 'Vol. replication' section. The dialog fields are as follows:

- Task name:** MirrorTask-b
- Source volume:** lv0001
- Destination volume:** lv0001 (with a right arrow icon)
- Bandwidth for SyncSource (MB):** 600

A blue arrow points from the 'Task name' field in the dialog to the 'Task name' field in the 'Vol. replication' list. Another blue arrow points from the 'Destination volume' dropdown in the dialog to the 'Destination volume' dropdown in the 'Vol. replication' list. A blue arrow also points from the 'Bandwidth for SyncSource (MB)' input field in the dialog to the same field in the 'Vol. replication' list.

Below the dialog, the 'Replication tasks manager' table shows a single task:

Name	Start time	Action
MirrorTask-a_reverse	n/a	

At the bottom left, there is an 'Event Viewer' link. At the bottom right, the footer reads 'Data Storage Software V7 - All rights reserved'.

As in the node-a, in the **Bandwidth for SyncSource (MB)** field you must change the value of a minimum of 500 MB. In our example 600 MB is used. Next click the **create** button.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

The screenshot displays the open-e Data Storage Software V7 interface across four main windows:

- Vol. groups**: Shows a single volume group named "vg00".
- Hosts binding**: Displays a remote node entry for "node-a-3..." with IP address 192.168.5.220 and status "Reachable". A red "disconnect" button is visible.
- Create new volume replication task**: A message box stating "No volumes with replication functionality found or all volumes have a task assigned already."
- Replication tasks manager**: A table listing two replication tasks:

Name	Start time	Action
MirrorTask-a_reverse	n/a	[play, pause, delete]
MirrorTask-b	2012-09-05 20:25:27	[play, pause, delete]

A blue arrow points from the text box below to the "Replication tasks manager" window.

In the Replication tasks manager function, click the corresponding „play” button to start the Replication task on the node-b: MirrorTask-b.

In this box you can find information about currently running replication tasks.

When a task is started a date and time will appear.

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS2)

node-b

IP Address:192.168.0.221

5. Create new target on the node-b

Choose **CONFIGURATION**, „**iSCSI target manager**” and „**Targets**” from the top menu.

In the **Create new target** function, uncheck the box **Target Default Name**.

In the **Name** field, enter a name for the new target and click **apply** to confirm.

iSCSI targets



The screenshot shows the open-e Data Storage Software V7 interface. At the top, there's a navigation bar with tabs: SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The CONFIGURATION tab is selected. Below it, a breadcrumb trail says "You are here: Configuration > iSCSI target manager > Targets". On the left, there are two main sections: "Targets" and "CHAP users". The "Targets" section is active, showing a table with one row. To its right is a "Create new target" dialog box. This dialog has several fields: a checkbox for "Target Default Name" which is unchecked, a "Name:" field containing "iqn.2012-09:mirror-0", and an "Alias:" field containing "target0". There's also a red "apply" button at the bottom right of the dialog. Below the "Targets" section, there's another dialog box titled "Discovery CHAP user access" with two radio button options: "No discovery CHAP user access authentication" (which is selected) and "Enable discovery CHAP user access authentication". A red "apply" button is also present here. At the bottom of the interface, there's an "Event Viewer" section with a star icon and a "Data Storage Software V7 - All rights reserved" copyright notice.

NOTE:

Both systems must have the same Target name.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS2)

node-b

IP Address:192.168.0.221

5. Create new target on the node-b

Next, you must set the 2nd target. Within the **Create new target** function, uncheck the box **Target Default Name**. In the **Name** field, enter a name for the 2nd new target and click **apply** to confirm.

iSCSI targets



The screenshot shows the Open-E DSS V7 web interface. On the left, there's a sidebar with 'Targets' and 'CHAP users' sections. The main area has three tabs: 'Targets', 'Create new target', and 'Discovery CHAP user access'. The 'Create new target' tab is active, displaying a success message: 'New target has been created successfully!' with a note to uncheck 'Target Default Name' and enter a 'Name' (e.g., 'iqn.2012-09:mirror-1') and 'Alias' ('target1'). Arrows point from the text in the blue box to the 'Target Default Name' checkbox and the 'Name' input field. The 'Discovery CHAP user access' tab shows two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. The bottom of the screen shows an 'Event Viewer' section and a footer with 'Data Storage Software V7 - All rights reserved'.

NOTE:

Both systems must have the same Target name.

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS2)

node-b

IP Address:192.168.0.221

5. Create new target on the node-b

After that, select **target0** within the Targets field.

To assign appropriate volume to the target (**iqn.2012-09:mirror-0 -> lv0000**) and click the **+** button located under Action.

The screenshot shows the 'Targets' list with 'target0' selected. In the 'Target volume manager' section, there are three informational boxes: 'Info' (no LUNs added), 'Info' (logical volumes selected as mirror destination), and 'Info' (note about LUN 0). The 'Target volume manager' table lists two volumes: 'lv0000' and 'lv0001'. The 'lv0000' row has a '+' button in the 'Action' column, which is highlighted by a blue arrow. The 'CHAP user access authentication' section shows 'No CHAP user access authentication' selected. At the bottom, the 'Event Viewer' and 'Data Storage Software V7 - All rights reserved' are visible.

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	yakFXJf3NEV587eA	0	<input type="checkbox"/>	<input type="checkbox"/>	+
lv0001	iZGxwlh33QBSpRdN	0	<input type="checkbox"/>	<input type="checkbox"/>	+

NOTE:

Volumes on both sides must have the same SCSI ID and LUN# for example: lv0000 SCSI ID on node-a = lv0000 on node-b.

WARNING:

Please do not switch on the write back (WB) cache !

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS2)

node-b

IP Address:192.168.0.221

5. Create new target on the node-b

Next, select **target1** within the Targets field.

To assign appropriate volume to the target (**iqn.2012-09:mirror-1->lv0001**) and click the **+** button located under Action.

The screenshot shows the 'Targets' list with 'target0' and 'target1'. The 'target1' row is highlighted. In the 'Target volume manager' section, there is a table with columns: Volume, SCSI ID, LUN, RO, WB, and Action. A blue arrow points to the '+' button in the 'Action' column for the 'lv0001' row. The 'CHAP users' and 'CHAP user access authentication' panels are also visible at the bottom.

Volume	SCSI ID	LUN	RO	WB	Action
lv0001	iZGxwlh33QBSpRdN	0	<input type="checkbox"/>	<input type="checkbox"/>	+

NOTE:
Both systems must have the same SCSI ID and LUN#

WARNING:
Please do not switch on the write back (WB) cache !

Event Viewer

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Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

On the node-a, choose **CONFIGURATION**, „iSCSI target manager” and „Targets” from the top menu.

Within the **Create new target** function, uncheck the box **Target Default Name**.
In the **Name** field, enter a name for the new target and click **apply** to confirm.

iSCSI targets



NOTE:

Both systems must have the same Target name.

The screenshot shows the 'Create new target' dialog box. It includes fields for 'Name' (set to 'iqn.2012-09:mirror-0') and 'Alias' (set to 'target0'). A checkbox for 'Target Default Name' is unchecked. There is also a 'Discovery CHAP user access' section with two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. Both the main dialog and the 'Discovery CHAP user access' box have a red 'apply' button at the bottom right.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

Next, you must set the 2nd target.
In the **Create new target** function,
unchecked the box **Target Default Name**.

In the Name field, enter a name for
the 2nd new target and click **apply**
to confirm.

iSCSI targets



NOTE:

Both systems must have the same Target name.

The screenshot shows the Open-E DSS V7 web interface. On the left, there's a sidebar with 'Targets' and 'CHAP users' sections. The main area has three tabs: 'Targets', 'Create new target', and 'Discovery CHAP user access'. The 'Create new target' tab is active, displaying a success message: 'New target has been created successfully!' with a note to apply changes. It shows fields for 'Name' (set to 'iqn.2012-09:mirror-1') and 'Alias' (set to 'target1'). The 'Discovery CHAP user access' tab shows two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. At the bottom, there are 'apply' buttons for both tabs.

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

Select the **target0** within the Targets field.

To assign appropriate volume to the target (**iqn.2012-09:mirror-0 -> lv0000**) and click the **+** button located under **Action**.

The screenshot shows the 'Target volume manager' interface. In the 'Targets' list, 'target0' is selected. The 'Volume' table lists two volumes: 'lv0000' and 'lv0001'. The 'Action' column for 'lv0000' contains a '+' button, which is highlighted with a red arrow. The 'CHAP user access authentication' section at the bottom has a radio button for 'No CHAP user access authentication'.

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	yakFXJ3NEV587eA	0	<input type="checkbox"/>	<input type="checkbox"/>	+
lv0001	79tECRjeM3GuhBfa	0	<input type="checkbox"/>	<input type="checkbox"/>	+

NOTE:

Before clicking the **+** button again, please copy & paste the SCSI ID and LUN# from the node-b.

WARNING:

Please do not switch on the write back cache (WB) !

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

Select the **target1** within the Targets field.

To assign appropriate volume to the target (**iqn.2012-09:mirror-1->lv0001**) and click the **+** button located under **Action**.

The screenshot shows the 'Target volume manager' configuration screen. In the 'Targets' list, 'target1' is selected. In the main table, 'lv0001' is assigned to target1 with SCSI ID 'iZGxwlh33QBSpRdN' and LUN 0. The 'Action' column for this row contains a '+' button, which is highlighted with a blue arrow. Below the table, a 'CHAP user access authentication' dialog box is open, showing two radio button options: 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. An 'apply' button is at the bottom right of the dialog.

NOTE:

Before clicking the **+** button again, please copy & paste the SCSI ID and LUN# from the node-b.

WARNING:

Please do not switch on the write back cache (WB) !

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

On the node-a, go to **SETUP** and select „Failover”.

In the **Auxiliary paths** function, select the 1st **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

The screenshot shows the Open-E DSS V7 web interface with the following details:

- Auxiliary paths:** A table showing two auxiliary paths. The first path is "node-a-3... interface (local node)" with status "Inactive" and interface "eth5 (192.168.0.220)". The second path is "node-b-5... interface (remote node)" with status "Inactive" and interface "eth5 (192.168.5.221)". There is a delete icon next to the second path.
 - New auxiliary path:** Fields for "Interface on local node:" (bond0 (192.168.1.220)) and "Interface on remote node:" (bond0 (192.168.1.221)).
 - Buttons:** "cancel" and "add new auxiliary path".
 - Note:** "Please apply changes or press "reload" button to discard"
- Ping nodes:** A table showing ping node configurations. It has columns for "Ping node IP address", "node-a-3... status (local node)", and "node-b-5... status (remote node)".
 - No ping nodes defined.**
 - Buttons:** "add new ping node".

Event Viewer

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Open-E DSS V7 Active-Active iSCSI Failover

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

In the **Auxiliary paths** function, select the 2nd **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

Status	node-a-3... interface (local node)	node-b-5... interface (remote node)
Inactive	eth5 (192.168.5.220)	eth5 (192.168.5.221)
Inactive	bond0 (192.168.1.220)	bond0 (192.168.1.221)

New auxiliary path

Interface on local node: bond1 (192.168.2.220)

Interface on remote node: bond1 (192.168.2.221)

cancel add new auxiliary path

Ping nodes

Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)
No ping nodes defined.		

Event Viewer

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Open-E DSS V7 Active-Active iSCSI Failover

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

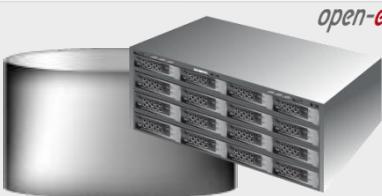
6. Configure Failover

In the **Ping nodes** function, enter two ping nodes.
In the **IP address** field enter IP address and click the **add new ping node** button (according to the configuration in the third slide).
In this example, IP address of the first ping node is: 192.168.1.107 and the second ping node: 192.168.2.107

The screenshot shows the 'Ping nodes' configuration screen. It lists two ping nodes: 'node-a-3...' (status: local node) and 'node-b-5...' (status: remote node). Both are marked as 'Reachable'. Below this, there is a 'New ping node' section with an 'IP address:' field containing '192.168.2.107'. At the bottom of this section are 'cancel' and 'add new ping node' buttons. A note at the bottom of the screen says 'Please apply changes or press "reload" button to discard'. Below this is the 'Failover trigger policy' screen, which has 'Trigger failover on I/O errors (any volume)' selected. There is also a 'Show advanced options' link. At the bottom right of the 'Failover trigger policy' screen is an 'apply' button. The footer of the page includes an 'Event Viewer' link and the text 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

Next, go to the **Resources Pool Manager** function (on node-a resources) and click the **add virtual IP** button. After that, enter **Virtual IP**, (in this example 192.168.21.100 according to the configuration in the third slide) and select two appropriate interfaces on local and remote nodes. Then, click the **add** button.

The screenshot shows the 'Resources pool manager' interface for node-a. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current location is 'Setup > Failover'. The main area displays 'node-a-39166501 resources (local node)' with a status of 'unknown'. Below this, there are sections for 'Virtual IP addresses' and 'iSCSI resources'. A red bar highlights the 'Virtual IP addresses' tab. The 'add virtual IP' section contains fields for 'Virtual IP' (set to 192.168.21.100), 'Interface on local node' (set to bond0 (192.168.1.220)), 'Interface on remote node' (set to bond0 (192.168.1.221)), 'Netmask' (set to 255.255.255.0), and 'Broadcast (optional)'. At the bottom of the screen, another section for 'node-b-59979144 resources (remote node)' is visible, showing a status of 'unknown'.

Open-E DSS V7 Active-Active iSCSI Failover

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

Now, still on node-a resources (local node) enter the next Virtual IP address. Click **add virtual IP** enter **Virtual IP**, (in this example 192.168.31.100), and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

The screenshot shows the 'Resources pool manager' window for 'node-a-39166501 resources (local node)'. The status is 'unknown'. Below the status, there are buttons for 'move' and 'sync between nodes'. At the bottom, there are tabs for 'Virtual IP addresses' (which is selected) and 'iSCSI resources'. A large blue box contains instructions for adding a new virtual IP. A blue arrow points from the top of this box to the 'add virtual IP' button. Three other blue arrows point from the text box to the 'Virtual IP:', 'Interface on local node:', and 'Interface on remote node:' input fields. The 'Virtual IP:' field contains '192.168.31.100'. The 'Interface on local node:' dropdown contains 'bond1 (192.168.2.220)'. The 'Interface on remote node:' dropdown contains 'bond1 (192.168.2.221)'. The 'Netmask:' field contains '255.255.255.0'. The 'Broadcast (optional):' field is empty. At the bottom right are 'cancel' and 'add' buttons. Below this window, another window for 'node-b-59979144 resources (remote node)' is partially visible, showing a 'Status: unknown' and a 'move' button. The bottom of the screen features an 'Event Viewer' icon and a copyright notice: 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

The screenshot shows the 'add virtual IP' configuration dialog for node-a. The dialog has two tabs: 'Virtual IP addresses' (selected) and 'iSCSI resources'. The 'Virtual IP addresses' tab displays two entries:

Virtual IP	Interface on local node:	Interface on remote node:
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)

Below the table, there is a section for 'node-b-59979144 resources (remote node)' with fields for 'Status: unknown' and 'Synchronization status: not configured'. There are 'move' and 'Sync between nodes' buttons. At the bottom of the dialog, there are 'cancel' and 'add' buttons.

A blue box on the left contains the following text:

Then, go to node-b resources and click the **add virtual IP** button again and enter the **Virtual IP** (In this example 192.168.22.100 according to the configuration in the third slide) and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

Three blue arrows point from the text in the blue box to the 'Virtual IP' field, the 'Interface on local node' dropdown, and the 'Interface on remote node' dropdown respectively.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

The screenshot shows the 'Failover' configuration page of the Open-E DSS V7 web interface. At the top, there's a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The CONFIGURATION tab is selected. Below the navigation bar, a breadcrumb trail indicates the current location: You are here: Setup > Failover.

The main content area displays two existing virtual IP configurations:

Virtual IP	Interface on local node:	Interface on remote node:
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)

Below these configurations, there's a section for a remote node named "node-b-59979144 resources". It shows the status as "unknown" and synchronization status as "not configured". There are "move" and "sync between nodes" buttons.

At the bottom of the page, there's a form to "add virtual IP". The fields are as follows:

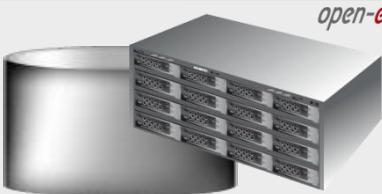
Virtual IP:	192.168.32.100
Interface on local node:	bond1 (192.168.2.220)
Interface on remote node:	bond1 (192.168.2.221)
Netmask:	255.255.255.0
Broadcast (optional):	[empty field]

At the bottom right of the form are "cancel" and "add" buttons. The footer of the page includes an "Event Viewer" link and a copyright notice: "Data Storage Software V7 - All rights reserved".

Now, still on node-b resources, click the **add virtual IP** button and enter the next **Virtual IP**, (in this example 192.168.32.100, according to the configuration in the third slide) and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

Now you have 4 Virtual IP addresses configured on two interfaces.

The screenshot shows the 'Virtual IP addresses' tab for node-a. It lists four virtual IP addresses, each associated with a local bond interface and a remote bond interface. The first two entries are for node-b-59979144 resources (remote node). The bottom two entries are for node-a resources (local node).

Virtual IP	Interface on local node:	Interface on remote node:
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)
192.168.22.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)
192.168.32.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)

A blue callout box on the left points to the top section of the interface, stating: "Now you have 4 Virtual IP addresses configured on two interfaces."

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

When you are finished with setting the virtual IP, go to the **iSCSI resources** tab on the **local node** resources and click the **add or remove targets** button.

After moving the target **mirror-0** from **Available targets** to **Targets already in cluster**, click the **apply** button.

The screenshot shows the 'Resources pool manager' interface for node-a. At the top, there are tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'iSCSI resources' tab is currently selected. In the 'Available targets' section, there is one entry: 'iqn.2012-09:mirror-1'. In the 'Targets already in cluster' section, there is one entry: 'iqn.2012-09:mirror-0'. At the bottom of the screen, under 'node-b-59979144 resources (remote node)', there is an 'Info' message: 'Virtual IP has been created successfully.' Below this, there are status and synchronization indicators for node-b. At the very bottom, there is an 'Event Viewer' section and a footer note: 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

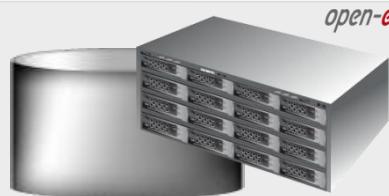
IP Address:192.168.0.220

6. Configure Failover

Next, go to the **iSCSI resources** tab on the **remote node resources** and click the **add or remove targets** button.
After moving the target **mirror-1** from **Available targets** to **Targets already in cluster**, click the **apply** button.

The screenshot shows the 'iSCSI resources' configuration dialog. At the top, there's a header bar with tabs for 'Virtual IP addresses' and 'iSCSI resources' (which is currently selected). Below the header, there's a section for 'iSCSI target: target0 (iqn.2012-09:mirror-0)' with fields for 'Replication task' (set to 'MirrorTask-a'), 'Logical volume' (set to 'lv0000'), and 'Replication task state' (set to 'OK'). There's also a 'delete' icon next to the target name. Below this, there's a section for 'node-b-59979144 resources (remote node)' with 'Status: inactive' and buttons for 'move' and 'sync between nodes'. At the bottom of the dialog, there are two lists: 'Available targets' (empty) and 'Targets already in cluster' (containing 'iqn.2012-09:mirror-1'). Two red arrows point from the text instructions to the 'add or remove targets' button and the 'Targets already in cluster' list respectively. The footer of the dialog includes 'cancel' and 'apply' buttons, and an 'Event Viewer' link.

Open-E DSS V7 Active-Active iSCSI Failover



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

After that, scroll to the top of the **Failover manager** function.
At this point, both nodes are ready to start the Failover.
In order to run the Failover service, click the **start** button and confirm this action by clicking the **start** button again.

The screenshot shows the 'Failover manager' screen of the open-e Data Storage Software V7. At the top, a message says 'Cluster status: Ready for Start' with a note: 'All required settings have been set up, cluster is ready to be started.' A large red 'start' button is prominently displayed. Below this, there are two sections for 'Resources pool': 'node-a-39166501 (local node) resources pool:' and 'node-b-59979144 (remote node) resources pool:'. Both show 'Status: inactive' and 'Replication state: synced'. Under 'Network statuses', it shows 'Ping nodes: 2 of 2 reachable' and 'Auxiliary paths: 3 defined'. The 'Remote node status' section shows 'Remote node availability: Reachable', 'Remote node hostname: node-b-59979144', and 'Remote node IP: 192.168.5.221'. At the bottom, there is an 'Event Viewer' tab and a footer note: 'Data Storage Software V7 - All rights reserved'.

NOTE:

If the start button is grayed out, the setup has not been completed.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

7. Start Failover Service

After clicking the **start** button,
configuration of both nodes is
complete.

The screenshot shows the 'Failover manager' interface of the Open-E DSS V7 software. At the top, a banner reads 'ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS' and 'DATA STORAGE SOFTWARE V7'. The main area displays the 'Cluster status: Running - OK'. Below this, there are two sections for 'Resources pool': 'node-a-39166501 (local node) resources pool' and 'node-b-59979144 (remote node) resources pool'. Both show 'Status: active' and 'Replication state: synced'. A red 'stop' button is visible above the remote node section. Below these are 'Network statuses' and 'Remote node status' tables. The 'Network statuses' table shows 'Ping nodes: 2 of 2 reachable' and 'Auxiliary paths: 3 of 3 reachable'. The 'Remote node status' table shows 'Remote node availability: Reachable', 'Remote node hostname: node-b-59979144', and 'Remote node IP: 192.168.5.221'. At the bottom, there's an 'Event Viewer' section and a footer note: 'Data Storage Software V7 - All rights reserved'.

NOTE:

You can now connect with iSCSI Initiators. The first storage client, in order to connect to target0 please setup multipath with following IP on the initiator side: 192.168.21.101 and 192.168.31.101. In order to connect to target1 please setup multipath with following IP on the initiator side: 192.168.22.101 and 192.168.32.101.

For the next storage client please setup multipath accordingly: for access to target: 192.168.21.102, 192.168.31.102 and for access to target1: 192.168.22.102, 192.168.32.102.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

In order to test Failover, go to the **Resources pool manager** function.

Then, in the **local node** resources, click on the **move to remote node** button and confirm this action by clicking the **move** button.

The screenshot shows the 'Resources pool manager' screen. At the top, there's a navigation bar with 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. Below it, a breadcrumb trail says 'You are here: Setup > Failover'. The main area has two sections: 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. In the local node section, the status is 'active on node-a-3... (local node)' and the synchronization status is 'synced'. There are buttons for 'move to remote node' and 'sync between nodes'. In the remote node section, the status is 'active on node-b-5... (remote node)' and the synchronization status is 'synced'. There are buttons for 'move to local node' and 'sync between nodes'. A red arrow points from the text in the blue box on the left to the 'move to remote node' button in the local node section. At the bottom, there's an 'Event Viewer' section and a footer that says 'Data Storage Software V7 - All rights reserved'.



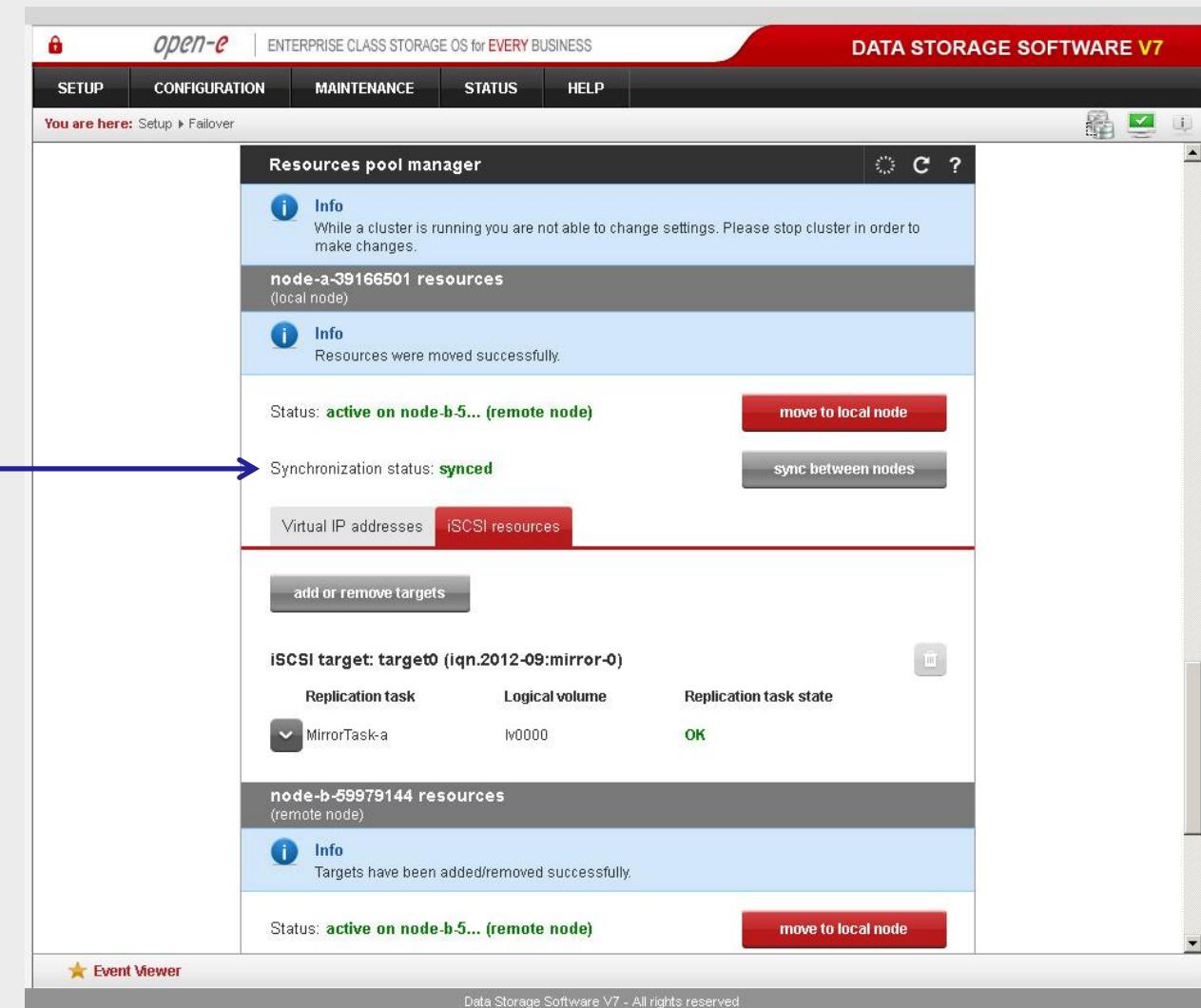
Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

After performing this step, the status for **local node** resources should state „active on node-b (remote node)” and the **Synchronization status** should state „synced”.



The screenshot shows the 'Resources pool manager' screen. At the top, there are tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The STATUS tab is selected. Below the tabs, the URL 'You are here: Setup > Failover' is displayed. The main area is titled 'Resources pool manager'. It shows two sections: 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. Under the local node section, there is an 'Info' message stating 'While a cluster is running you are not able to change settings. Please stop cluster in order to make changes.' Below this, it says 'Status: active on node-b-5... (remote node)' with a 'move to local node' button. Under the remote node section, it says 'Synchronization status: synced' with a 'sync between nodes' button. At the bottom, there are tabs for 'Virtual IP addresses' and 'iSCSI resources', with 'iSCSI resources' being the active tab. It shows an 'iSCSI target: target0 (iqn.2012-09:mirror-0)' entry with a replication task named 'MirrorTask-a' in 'OK' state. The bottom of the screen features an 'Event Viewer' section and a footer with the text 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

In order to test failback, click the **move to local node** button in the **Resources pool manager** box for local node resources and confirm this action by clicking the **move** button.

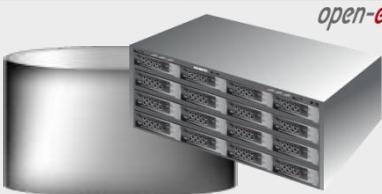
The screenshot shows the 'Resources pool manager' interface in the open-e Data Storage Software V7. It has two main sections:

- node-a-39166501 resources (local node):**
 - Status: **active on node-b-5... (remote node)**
 - Synchronization status: **synced**
 - Buttons: **move to local node**, **sync between nodes**
- node-b-59979144 resources (remote node):**
 - Status: **active on node-b-5... (remote node)**
 - Synchronization status: **synced**
 - Buttons: **move to local node**, **sync between nodes**

At the bottom left is the **Event Viewer** icon. At the bottom right is the copyright notice: **Data Storage Software V7 - All rights reserved**.

Open-E DSS V7 Active-Active iSCSI Failover

open-e



Data Server (DSS1)

node-a

IP Address:192.168.0.220

After completing this step, the status for node-a resources should state „active on node-a (local node)” and the **Synchronization status** should state „synced”. Then, you can apply the same actions for **node-b resources**.

9. Run Failback Function

The screenshot shows the 'Resources pool manager' interface in the open-e Data Storage Software V7. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The status bar at the bottom indicates 'Data Storage Software V7 - All rights reserved'. The main content area is divided into two sections:

- node-a-39166501 resources (local node):** Status: **active on node-a... (local node)**. Synchronization status: **synced**. Buttons: **move to remote node**, **Sync between nodes**.
- node-b-59979144 resources (remote node):** Status: **active on node-b... (remote node)**. Synchronization status: **synced**. Buttons: **move to local node**, **Sync between nodes**.

At the bottom left is an 'Event Viewer' icon. A blue callout box from the previous slide points to this screen, indicating the completion of the failover configuration.

NOTE:

The Active-Active option allows configuring resource pools on both nodes and makes it possible to run some active volumes on node-a and other active volumes on node-b. The Active-Active option is enabled with the TRIAL mode for 60 days or when purchasing the Active-Active Failover Feature Pack. The Active-Passive option allows configuring a resource pool only on one of the nodes. In such a case, all volumes are active on a single node only.

The configuration and testing of Active-Active iSCSI Failover is now complete.

Thank you!

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